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EXAMINER	
JAMAL, ALEXANDER	
ART UNIT	PAPER NUMBER
2614	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/735,272	PIKET ET AL.	
	Examiner	Art Unit	
	Alexander Jamal	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,10-26* is/are rejected.

7)☒ Claim(s) *9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Based upon the submitted amendment, the examiner notes that claims 1,4,10,15,21,25 have been amended.

2. Examiner notes that applicant has admitted (remarks page 14) that the 'playback' system 585 is prior art. Applicant contends that one skilled in the art would know that circuit comprises switchable inputs (as it is not disclosed in applicant's specification). If the switchable inputs are admitted prior art then examiner contends that the entire circuit is known prior art.

3. Examiner notes that applicant has argued that claim 13 is enabled by Fig. 7, and that location information generator 792 is 'coupled to' a transceiver. The examiner notes that the generator 792 is only 'coupled to' transceiver 780 via echo canceller circuit 510. As such, the examiner notes that applicant's use of the term 'coupled to' may be read with any intervening circuitry.

4. Based on the above assertions, the examiner withdraws the objections to the drawings and specification.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

As per **claims 21-26** the claimed invention is directed to non-statutory subject matter. The claims only cover processing a data signal. There is no concrete, tangible result cited in the claims. For the purpose of examination, the examiner assumes the claims contain the same preamble as claim 1.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1,4,10,21,25,2,5,3,8,24,6,14,22,26,23 are** rejected under 35 U.S.C. 103(a) as being unpatentable by Hemkumar (6282176) in view of applicant's admitted prior art (remarks page 14).

As per **claim 1,** Hemkumar discloses an echo cancel circuit in Figs. 1 and 2. The circuit comprising uplink (transmit) attenuator 164 (Fig. 1) that attenuates post echo canceller 152 data. The canceler further comprises ERL based attenuation data generator

(Col 17 lines 20-45) that determines near-end and far-end and doubletalk signaling states and provides attenuation data (the control bits) in response to the measured and calculated ERL data (Col 23 lines 45-50). The double talk detector performs the ERL measurements using pre-echo canceller uplink signal 204 (Fig. 2), attenuated downlink data (the echo canceller of Fig.2 is implemented after the suppression stage 140 in Fig. 1). However, Hemkumar does not specify an output amplifier that is located after the attenuated downlink data is sent to the ERL attenuation data generator.

Applicant's admitted prior art discloses (remarks page 14) an output amplifier with switchable inputs to drive a speaker. It would have been obvious to one of ordinary skill in the art at the time of this application to implement a driving amplifier (located after all the processing and after the A/D stage) for the purpose of driving the speaker disclosed in Hemkumar Fig. 2. Examiner notes that it is very well known to provide analog amplifiers to speakers.

As per **claim 4,** it is rejected as per the claim 1 rejection. There is additionally a downlink RX suppression stage 140 that is controlled based on the double-talk detection (which is based on ERL measurements) (ABSTRACT). The ERL data is determined instantaneously, as Col 18 lines 25-30 discloses that the 'current' ERLE is used.

As per **claims 10,21,25 they are** rejected as per the claim 4 rejection. The device may be implemented in a telephone (Col 1 lines 10-25) that inherently comprises a housing for the purpose of supporting the internal circuitry. The phone inherently

comprises a transceiver for the subscriber loop interface and for the speaker/microphone interface for the purpose of transmitting/receiving the standard bidirectional telephone communication signals. Fig. 1 discloses a microcontroller interface 112 that inherently requires software for the purpose of controlling and implementing the hardware functions.

As per **claims 2,5,** the ERL calculates data based on a ratio of pre echo canceller uplink (Res) data and Downlink (Sin) data (Col 16 lines 5-30). The Res signal is based on the pre-echo canceller uplink signal minus the echo canceller estimate. The uplink and downlink attenuation data formed are the control bits to set the appropriate attenuator settings.

As per **claims 3,8,24,** the attenuators are set to respond to the ERLE measurement and will attenuate accordingly. The ERLE measurement is only updated periodically (as is the nature of a digital system, it is dependant on at least the clock rate of the system). During the time between updates the current attenuation settings for both the uplink and downlink attenuators will be maintained.

As per **claim 6,** the standard ERLE data is updated when there is a known good reading (ie. not a double talk condition) (Col 18 lines 15-50).

As per **claim 14,** it is rejected as per the claim 10 rejection.

As per **claims 22,26,** they are rejected as per the claim 2 and 10 rejections.

As per **claim 23,** the ERLE is used to determine the double-talk state of the device.

3. **Claims 15-20** rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen et al (US20040078104A1) in view of Hemkumar (6282176) and further in view of Takahashi et al. (6891954).

As per **claim 15,** Nguyen discloses an audio system in a vehicle comprising a playback module Fig. 2 that comprises a cd player and tuner selectably coupled to an output speaker. Nguyen additionally discloses wireless cellphone 182 coupled to the same speaker. The cell phone inherently comprises a wireless transceiver for the purpose of performing cellular communication. However Nguyen does not disclose applying an echo canceller/attenuator to the uplink and downlink signaling in the phone coupled to the car audio system, or a common output amplifier that is coupled to the outputs from all of the audio sources.

Hemkumar discloses that phones may use echo canceller to cancel unwanted echoes (Col 1 lines 1-30). Hemkumar discloses the echo canceller components as per the claim 10 rejection It would have been obvious to one of ordinary skill in the art at the time of this application to implement an echo canceller in the in-car phone system of Nguyen for the purpose of canceling unwanted echoes.

Takahashi discloses an in car audio system that comprises output amplifier 24 (Fig. 2) that accepts inputs from multiple input devices 11,12. This amplifier is an analog amplifier and as such is located after the processing disclosed by Hemkumar. Takahashi teaches that this configuration will allow for the input devices (such as the tuner or tape

deck) to be easily interchanged and the user can easily interface various input devices with varying output amplifiers. (Col 3 lines 15-55). The power amplifier is also implemented in order to provide a signal with enough power to drive the speaker (Col 2 line 60 to Col 3 line 20). It would have been obvious to one of ordinary skill in the art at the time of this application to implement a common buffer amplifier and output speaker amplifier for the purpose of providing a more universal interface and in order to provide enough power to drive the output speaker.

As per **claim 16,** it is rejected as per the claim 15 rejection

As per **claim 17,** it is rejected as per the claim 2 rejection.

As per **claim 18,** Takahashi discloses an output speaker after the amplifier stage.

As per **claim 19,** it is rejected as per the claim 10 rejection.

As per **claim 20,** it is rejected as per the claim 3 rejection.

4. **Claim 7** rejected under 35 U.S.C. 103(a) as being unpatentable over Hemkumar (6282176) as applied to claims 4,5 and further in view of Takahashi et al. (6891954).

As per **claim 7,** Hemkumar discloses an echo canceller as per the claim 4 rejection, with D/A converter 144, and A/D converter 136 (Fig. 1). This amplifier is an analog amplifier and as such is located after the processing disclosed by Hemkumar. The ERLE circuitry would detect any changes in signal amplitude made before or after D/A converter because the measurement comprises both the downlink and uplink signals (both of which will be affected

by the level of the downlink signal). Any change in gain (such as that caused by an amplifier) will be detected by the ERLE measurement. The echo canceller when implemented in a phone, inherently comprises a speaker and microphone for speaking and listening. However, Hemkumar does not disclose a power amplifier after the D/A converter (although his ERLE detection would be able to detect any gain changes in the amplifier).

Takahashi discloses an in car audio system that comprises output amplifier 24 (Fig. 2) that accepts inputs from multiple input devices 11,12. Takahashi teaches that this configuration will allow for the input devices (such as the tuner or tape deck) to be easily interchanged and the user can easily interface various input devices with varying output amplifiers. (Col 3 lines 15-55). The power amplifier is also implemented in order to provide a signal with enough power to drive the speaker (Col 2 line 60 to Col 3 line 20) It would have been obvious to one of ordinary skill in the art at the time of this application to implement a common buffer amplifier and output speaker amplifier for the purpose of providing a more universal interface and in order to provide enough power to drive the output speaker.

5. **Claims 11,12** rejected under 35 U.S.C. 103(a) as being unpatentable over Hemkumar (6282176) as applied to claim 10, and further in view of applicant's admitted prior art (remarks page 14) and further in view of Nguyen et al (US20040078104A1).

As per **claims 11,12,** Hemkumar discloses that phones may use echo canceller to cancel unwanted echoes (Col 1 lines 1-30). Hemkumar discloses the echo canceller components as per the claim 10 rejection However Hemkumar does not disclose

applying an echo canceller/attenuator to the uplink and downlink signaling in the phone coupled to a car audio system, or a common output amplifier that is coupled to the outputs from all of the audio sources, including an amplifier to drive the speaker located after the ERL processing.

Applicant's admitted prior art discloses (remarks page 14) an output amplifier with switchable inputs to drive a speaker. It would have been obvious to one of ordinary skill in the art at the time of this application to implement a driving amplifier (located after all the processing and after the A/D stage) for the purpose of driving the speaker disclosed in Hemkumar Fig. 2. Examiner notes that it is very well known to provide analog amplifiers to speakers.

Nguyen discloses an audio system in a vehicle comprising a playback module Fig. 2 that comprises a cd player and tuner selectably coupled to an output speaker. Nguyen additionally discloses wireless cellphone 182 coupled to the same speaker. The cell phone inherently comprises a wireless transceiver for the purpose of performing cellular communication. It would have been obvious to one of ordinary skill in the art at the time of this application to implement an echo canceller in the in-car phone system of Nguyen for the purpose of canceling unwanted echoes.

6. **Claim 13** rejected under 35 U.S.C. 103(a) as being unpatentable over Hemkumar (6282176) in view of applicant's admitted prior art (remarks page 14), in view of Nguyen et al (US20040078104A1) as applied to claims 10 and 11, and further in view of Lau et al. (6122506).

As per **claim 13,** Hemkumar and Nguyen and applicant's admitted prior art disclose an audio system in a vehicle comprising a playback module Fig. 2 (NGUYEN) that comprises a cd player and tuner selectably coupled to an output speaker. Nguyen additionally discloses wireless cellphone 182 coupled to the same speaker. However Nguyen and Hemkumar do not disclose location hardware and software implemented with the cellular phone.

Lau teaches a combine cell phone and GPS system with microprocessor (which inherently comprises software to perform the phone and GPS functions (ABSTRACT). It would have been obvious to one of ordinary skill in the art at the time of this application to implement a GPS function in the phone of Nguyen for the advantage (inherent to a GPS system) of providing the user with location monitoring.

Allowable Subject Matter

Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

1. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

2. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Jamal whose telephone number is 571-272-7498. The examiner can normally be reached on M-F 9AM-6PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis A Kuntz can be reached on 571-272-7499. The fax phone numbers for the organization where this application or proceeding is assigned are **571-273-8300** for regular communications and **571-273-8300** for After Final communications.

CURTIS KUNTZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Examiner Alexander Jamal

January 29, 2008